

Using Human-Centered Design Tools to Improve Health Justice

Rick Peter Fritz Wolthusen , MD, MPP

Jane Patricia Gagliardi , MD, MHS, FACP, DFAPA

Background: Health Inequities Exist, and Change Is Hard

Decades of evidence illustrate health injustices in prevention,¹ treatment,² and rehabilitation³ based on racialized identity. Racial inequities affect not only patients, but also clinical learners who observe a mismatch between personal and institutional values around racial equity. Moral distress and cognitive dissonance can result.^{4,5}

Despite mounting data illustrating health inequities, barriers exist to creating and sustaining actionable health equity improvements. Like other “wicked,” seemingly unsolvable problems, the problem of health injustice invokes emotional responses.⁶ Human-centered design (HCD) and its mindsets (see TABLE for a complete list), such as creative confidence (we all can make a difference) or failing hard and early (recognizing the importance of a growth mindset), may help to shift the focus from blame to solution and can make the work more meaningful and relevant while promoting self-compassion. HCD has an evidence base in social movements⁸ and medicine^{9,10}; however, it has been less used in racial inequity. Having used HCD extensively in our quality improvement work, our perspective piece reflects our opinions on how adopting HCD mindsets and tools may permit graduate medical education (GME) stakeholders to bridge the gap between the status quo and desired practices of providing racially equitable patient care.

HCD: Selected Tools to Overcome Inertia and Promote Improvement

HCD employs several readily available and translatable tools, such as stakeholder mapping, journey maps, and idea-generating and idea-selecting activities that help to facilitate authentic discovery, thoughtful planning, and measurable improvement.

DOI: <http://dx.doi.org/10.4300/JGME-D-23-00668.1>

Editor's Note: The online supplementary data contains further data from the study.

Stakeholder Mapping

Stakeholder mapping is crucial to understanding who is involved in or affected by a problem. For example, for racially inequitable preventative screening services such as colorectal screening, the direct stakeholders involved in the activity are the clinician and the patient; however, many more stakeholders, such as schedulers, community members that influence the patients' health-seeking behavior, reimbursement agencies, or policymakers need to be included in an accurate stakeholder mapping, which is essential for allocating limited financial or human resources to yield the most meaningful possible change. Two questions can help guide this exploration: (1) What are the stakeholders' interests and motivation?; and (2) How much power do these stakeholders have to make a change? Depending on the findings, stakeholders can be grouped into 4 categories (FIGURE 1); strategies to promote change differ per stakeholder type. Multilevel stakeholder participatory approaches have led to uncovering hidden intrapersonal, interpersonal, and institutional perspectives and barriers in health care preventive services¹¹; contribute to trust-building between stakeholders; and can reduce racial inequities.

Journey Maps

Journey maps provide a detailed timeline, breaking an activity into its many components (online supplementary data FIGURE). They focus on behavioral, cognitive, and emotional barriers to change. Coming to the emergency department may be necessary, but depending on the mode of transport and the reason for the presentation, the patient may experience a variety of emotions, such as fear, anxiety, or worry, at different stages. When a clinician decides to restrain or seclude patients based on their presentations, health professionals may experience stress, power, exhilaration, guilt, or a combination of emotions in the short term. In the long term, they may feel confused at having acted out or witnessed

TABLE
Potentially Useful Human-Centered Design Mindsets

Mindset	Thoughts
Creative confidence	The notion that you have big ideas, and that you have the ability to act on them
Make it	Taking risk out of the process by putting something simple first; you always learn lessons from it
Learn from failure	Instead of conceptualizing it as failure, think of it as designing experiments through which you are going to learn
Empathy	Recognizing the importance of getting to know different people, different scenarios, and different places in order to get to new solutions
Embrace ambiguity	Giving ourselves permission to explore many different possibilities so that the right answer can reveal itself
Optimism	Believing that positive change is possible drives you forward
Iterate, iterate, iterate	Iteration and hearing ideas reflected back from others, including those for whom we design our interventions, can validate our ideas
Divergence and convergence	Before refining and narrowing (convergent thinking), creating as many possible ideas of the problem/solution as possible (divergent thinking)
Plan, do, study, act (PDSA)	Thinking in PDSA cycles; the PDSA model is an iterative, 4-stage problem-solving model used for improving a process or carrying out change

Note: This table was inspired by Ideo's Human-Centered Design Field Guide.⁷

behaviors that went against their values and moral beliefs (ie, moral injury). They may also feel that they were part of a situation that seemed to proceed without rational thoughts, or one in which beliefs did not line up with actions (ie, cognitive dissonance). Making behaviors, thoughts, and emotions explicit at different stages expands the lens to reflect on ideas to improve the status quo.

Idea-Generating and Idea-Selecting Tools

Idea generation in the problem and solution spaces requires divergence (exploring and generating as many ideas as possible without judgment or criticism) and convergence (selecting, evaluating, and refining the most promising ideas from the divergence phase). For a patient presenting to the emergency

department with chest pain, it would be premature to close the problem space by adjudicating a diagnosis of myocardial infarction. The job of first assessing the complaint is generating as many differential diagnoses as possible, even in the face of additional hints about the actual diagnosis. Next, a patient-centered history, a clinical examination, appropriate labs, and perhaps imaging or further procedures would narrow the differential diagnosis and help specify the cause of the symptoms that one can then target for treatment. Again, clinicians may prematurely close the solution space if they just prescribed the same first-line treatment to everyone with the same symptoms. They need to carefully consider clinical, demographic, and pharmacological variables of various medication before choosing one medication or another.

While health professionals have been trained to apply divergent and convergent thinking in clinical care, they do not necessarily use the same approach in other areas, or they are not able to fully explore the problem and solution spaces due to other constraints. For example, clinicians are often forced to explore only a limited set of discharge options due to financial constraints (ie, pressure from insurance companies to discharge the patient) instead of thinking creatively about alternatives with the patients and their families. Patients may get discharged to a skilled nursing facility (SNF), but not everyone benefits equally from that.

In fact, Black patients may be harmed by being more likely to be discharged to SNFs that have a higher 30-day rehospitalization rate.³ This lack of full exploration of the problem and solutions spaces extends to the racial inequities field, in which

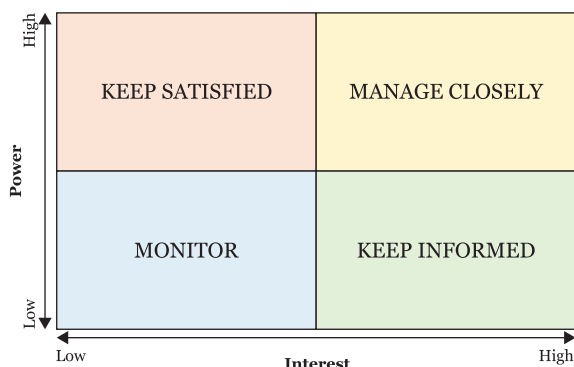


FIGURE 1
A Power-Interest Matrix Grouping Potential Stakeholders by Their Power and Interest (to Make a Difference)

Note: See online supplementary data for more details.

focusing on what is already known and evident is customary. Applying solutions that have worked elsewhere risks ignoring the inadequacy of a one-size-fits-all approach to different institutions. Divergent and convergent modes of thinking can help individuals expand generated ideas from intrapersonal, interpersonal, institutional, and systematic spaces.

After idea generation comes the task of selecting an action. The “Now-Wow-Ciao-How” matrix (FIGURE 2) is an idea-selecting tool that can help to brainstorm, plan ideas, and organize thoughts (ie, alternative discharge options within an environment of constraints). Using the matrix, ideas can be categorized based on their originality (not very innovative to innovative) and ease of implementation (easy to difficult to implement).

Using HCD Tools to Champion Change

Evidence from racial health injustice research serves as a mirror to clinicians, educators, and administrators and should be the impetus to commit to meaningful change. Through the help of HCD tools, stakeholders at our institution implemented the Brøset Violence Checklist, which led to, among other outcomes, an increased sense of the stakeholders to own the problem of disproportionately higher triage of Black patients to the locked area of the emergency department and to solve it. At its core, HCD has the potential to involve empathetic engagement with various stakeholders in GME. At the same time, because of its nature, including broad stakeholder involvement and testing/reiterative cycles, HCD can be resource-consuming (human and financial), which can be a barrier. The outcome of HCD activities is also specific to a given problem at a given institution at a given time and may or may not be generalizable; however, generally, HCD tools, such as stakeholder and journey mapping or idea-generating and idea-selecting activities, have the potential to solve complex challenges,

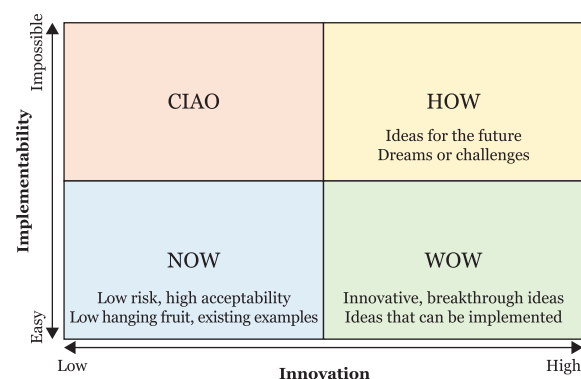


FIGURE 2

The “Now-Wow-Ciao-How” Matrix As an Idea-Selecting Tool

Note: See online supplementary data for more details.

including how we might provide racially equitable patient care.

References

1. Coleman Wallace DA, Baltrus PT, Wallace TC, Blumenthal DS, Rust GS. Black White disparities in receiving a physician recommendation for colorectal cancer screening and reasons for not undergoing screening. *J Health Care Poor Underserved*. 2013;24(3): 1115-1124. doi:10.1353/hpu.2013.0132
2. Smith CM, Turner NA, Thielman NM, Tweedy DS, Egger J, Gagliardi JP. Association of Black race with physical and chemical restraint use among patients undergoing emergency psychiatric evaluation. *Psychiatr Serv*. 2022;73(7):730-736. doi:10.1176/appi.ps.202100474
3. Rivera-Hernandez M, Rahman M, Mukamel DB, Mor V, Trivedi AN. Quality of post-acute care in skilled nursing facilities that disproportionately serve Black and Hispanic patients. *J Gerontol A Biol Sci Med Sci*. 2019;74(5):689-697. doi:10.1093/gerona/gly089
4. Salari N, Shohaimi S, Khaledi-Paveh B, Kazemini M, Bazrafshan MR, Mohammadi M. The severity of moral distress in nurses: a systematic review and meta-analysis. *Philos Ethics Humanit Med*. 2022;17(1):13. doi:10.1186/s13010-022-00126-0
5. Gagliardi JP, Smith CM, Simmons KL, Tweedy DS. Racial justice beyond the curriculum: aligning systems of care with anti-racist instruction in graduate medical education. *J Grad Med Educ*. 2022;14(4):403-406. doi:10.4300/JGME-D-22-00056.1
6. Fischer M, Safaeinili N, Haverfield MC, Brown-Johnson CG, Zions D, Zulman DM. Approach to human-centered, evidence-driven adaptive design (AHEAD) for health care interventions: a proposed framework. *J Gen Intern Med*. 2021;36(4):1041-1048. doi:10.1007/s11606-020-06451-4
7. IDEO, ed. *The Field Guide to Human-Centered Design: Design Kit*. 1st ed. Design Kit; 2015.
8. Abramson A. How human-centered engineers can save us from climate change. *Dartmouth Engineering*. Published February 25, 2021. Accessed May 7, 2023. <https://engineering.dartmouth.edu/news/how-human-centered-engineers-can-save-us-from-climate-change>
9. Göttgens I, Oertelt-Prigione S. The application of human-centered design approaches in health research and innovation: a narrative review of current practices. *JMIR MHealth UHealth*. 2021;9(12):e28102. doi:10.2196/28102
10. Melles M, Albayrak A, Goossens R. Innovating health care: key characteristics of human-centered design. *Int J Qual Health Care*. 2020;33(suppl 1):37-44. doi:10.1093/intqhc/mzaa127
11. Kathrikolly TR, Nair S, Poobalan AS, Shetty RS, Tripathy S, Mac Lennan SJ. Increasing engagement

for breast cancer screening and treatment: the
“ICANTREAT” community of expertise initiative.
Asian Pac J Cancer Prev. 2020;21(12):3655-3659.
doi:10.31557/APJCP.2020.21.12.3655



Rick Peter Fritz Wolthusen, MD, MPP, is a PGY-4 Physician-
Scientist Psychiatry Resident, Department of Psychiatry and

Behavioral Sciences, Duke University Medical Center, Durham,
North Carolina, USA; and **Jane Patricia Gagliardi, MD, MHS,
FACP, DFAPA**, is Professor of Medicine, Associate Dean for
Learning Environment and Well-Being, and Professor of Psychiatry
and Behavioral Sciences, Duke University Medical School, Durham,
North Carolina, USA.

Corresponding author: Rick Peter Fritz Wolthusen, MD, MPP, Duke
University Medical Center, Durham, North Carolina, USA,
rick.wolthusen@duke.edu